

# Mineral Industry Surveys

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## CHROMIUM IN DECEMBER 2018

Reported consumption of chromium, on a gross weight basis, in December 2018 increased slightly compared with reported consumption of chromium in November 2018, and decreased slightly compared with consumption in December 2017. High-carbon ferrochromium accounted for 86% of the chromium material consumed in December 2018. Stainless steel was the leading end use, consuming 89% of chromium materials (tables 1,2). Consumer stocks increased by 6% compared with those of the previous month and increased by 15% compared with those of December 2017.

Stainless steel production was 198,000 metric tons (t) in December 2018, a slight decrease compared with production in November 2018, and a decrease of 12% compared with

production in December 2017. However, stainless steel production in 2018 increased slightly compared with production in 2017. Government stockpile inventories for ferroalloys and chromium metal were slightly less and unchanged compared with those of November 2018, respectively. Compared with those of December 2017, Government stockpile inventories for chromium metal were essentially unchanged and ferroalloys inventories decreased by 7% (table 3).

Imports of chromite ore, chromium ferroalloys, chromium metal, and stainless steel commonly fluctuate from month to month (table 1). Stainless steel imports in December 2018 increased by 7% compared with imports in November 2018

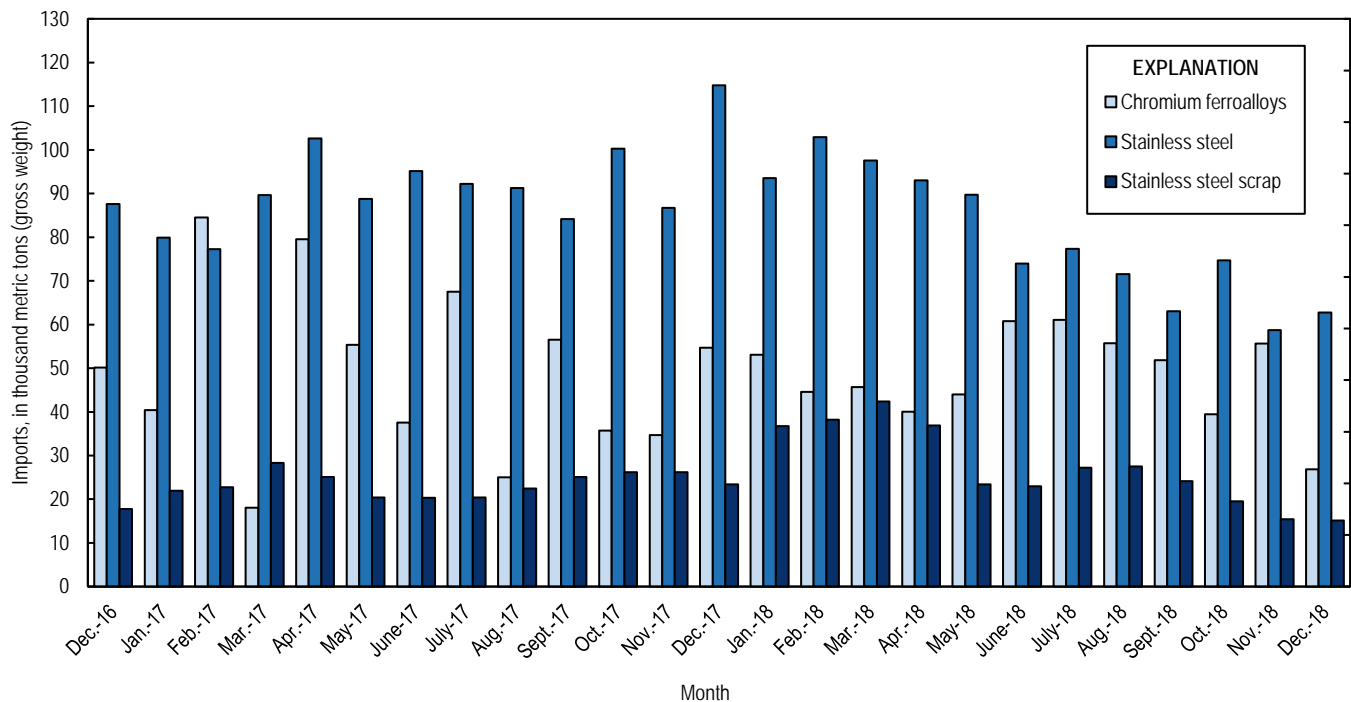


Figure 1. Chromium ferroalloys and stainless steel imports from December 2016 through December 2018. Source: U.S. Census Bureau.

and decreased by 46% compared with imports in December 2017 (fig. 1, table 1).

Exports of chromite ore, chromium ferroalloys, chromium metal, and stainless steel also frequently fluctuate from month to month (table 1, table 4). Stainless steel exports in December 2018 decreased by 16% compared with exports in November 2018 (table 1) and decreased by 48% compared with those of December 2017.

For December 2018, the leading import sources for ferrochromium (FeCr) into the United States were, in descending order of quantity by gross weight and chromium content, South Africa, Albania, and Russia (table 6), whereas the leading import sources for chromium metal were the United Kingdom, France, and China (table 7).

According to CRU Group (2019), the U.S. high-carbon FeCr (60%–70% chromium) average price was 107.813 cents per pound of contained chromium in December 2018, a 6% decrease from the average price in November 2018 and a 25% decrease from the average price in December 2017 (fig. 2). The high-carbon FeCr price began declining in September 2018 and continued to drop through December 2018.

The U.S. charge-grade FeCr (47%–55% chromium) average price was 134.500 cents per pound of contained chromium in December 2018, unchanged since March 2017. Prices for both forms of ferrochromium increased sharply from November 2016 through January 2017 before leveling off in early 2017 (fig. 2).

## Industry News

Eastern Platinum Ltd. (Canada) and its subsidiary Barplats Mine (Pty) Ltd. (South Africa), together known as Eastplats, began commissioning its chrome plant at the Crocodile River Mine in South Africa. In addition, the chrome processing unit, called the “Chrome Circuit,” which was developed to remine and process tailings at the Crocodile River Mine, produced its first chrome concentrate. Commercial production was expected to begin in early 2019, and the plant anticipated being at its full production rate by the end of the second quarter of 2019 (Eastern Platinum Ltd., 2018).

## References Cited

- CRU Group, 2019, CRU prices\_chrome\_historical data\_02\_jan\_2019\_dec\_avg: CRU Group, January 2. (Accessed March 13, 2019, via <http://www.crugroup.com/>.)
- Eastern Platinum Ltd., 2018, Eastplats announces first chrome concentrate at its Barplats Zandfontein UG2 tailings retreatment operations: Vancouver, Canada, Eastern Platinum Ltd. press release, December 18. (Accessed March 13, 2019, at <https://eastplats.com/first-chrome-concentrate/>.)

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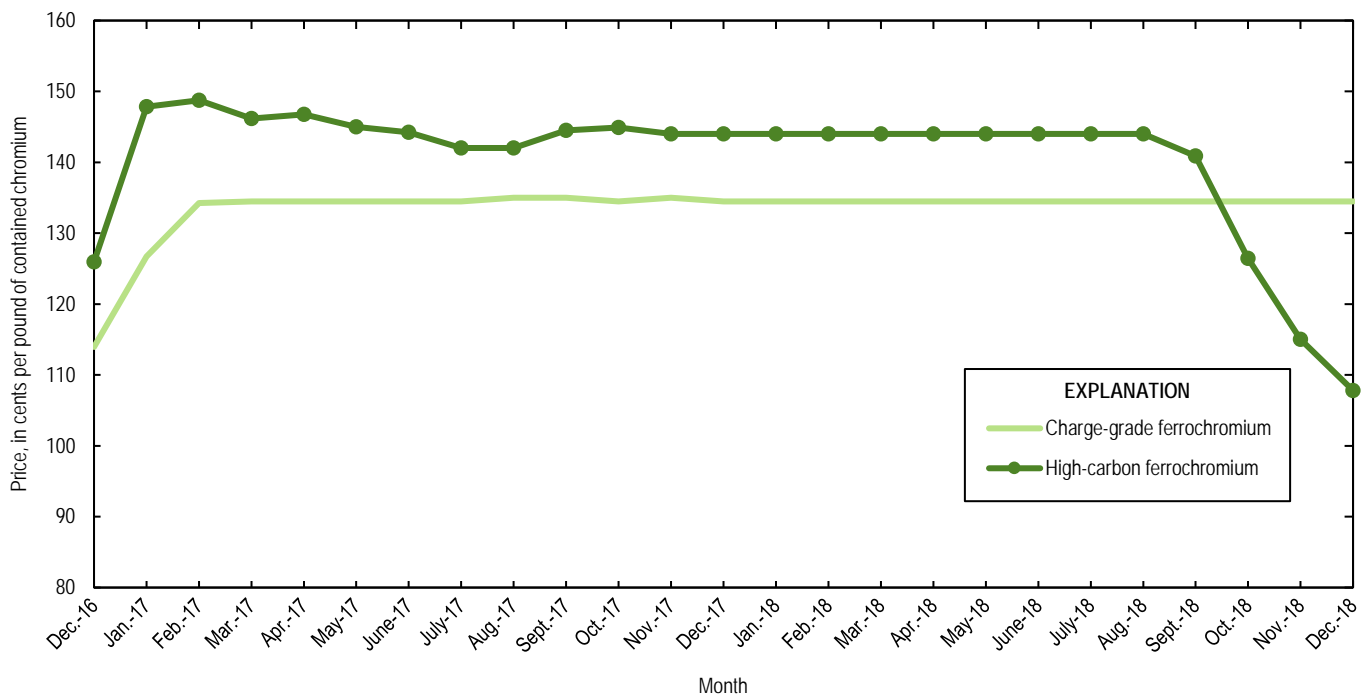


Figure 2. Average monthly prices for U.S. charge-grade and high-carbon ferrochromium from December 2016 through December 2018. Source: CRU Group.

TABLE 1  
U.S. SALIENT CHROMIUM STATISTICS<sup>1</sup>

(Metric tons, gross weight)

	2017	2018			January– December <sup>2</sup>
	January– December <sup>p</sup>	October	November	December	
Production, stainless steel <sup>3</sup>	2,750,000	234,000	193,000	198,000	2,810,000
Components of U.S. supply:					
Stainless steel scrap receipts	892,000 <sup>r</sup>	75,900 <sup>r</sup>	75,200 <sup>r</sup>	74,900	891,000
Stainless steel scrap consumption	1,330,000 <sup>r</sup>	105,000 <sup>r</sup>	110,000 <sup>r</sup>	110,000	1,320,000
Imports for consumption:					
Chromite ore	130,000	8,970	361	39,200	197,000
Ferrochromium:					
More than 4% carbon	507,000	37,100	51,500	14,300	492,000
More than 3% but not more than 4% carbon	6,740	108	--	7,450	8,610
More than 0.5% but not more than 3% carbon	2,820	202	267	463	4,130
Not more than 0.5% carbon	51,600	2,030	3,350	2,340	56,000
Ferrochromium silicon	21,500	40	508	2,250	18,000
Total ferroalloy imports	590,000	39,500	55,700	26,800	579,000
Chromium metal <sup>4</sup>	14,500	1,460	1,100	1,100	18,000
Stainless steel	1,100,000	74,700	58,700	62,700	959,000
Stainless steel scrap	282,000	19,500	15,400	15,100	329,000
Distribution of U.S. supply:					
Consumption, industry, chromium ferroalloys and metal	421,000	31,100	32,400	32,900	391,000
Exports:					
Chromite ore	11,100	637	843	741	6,280
Chromium ferroalloys:					
High-carbon ferrochromium	1,240	93	34	61	731
Low-carbon ferrochromium	854	313	65	27	1,740
Ferrochromium silicon	15	--	24	3	60
Total ferroalloy exports	2,110	406	123	90	2,530
Chromium metal	622	43	43	29	514
Stainless steel	974,000	32,500	36,000	30,100	650,000
Stainless steel scrap	488,000	85,900	48,200	43,100	778,000
Stocks at end of period:					
Consumer, industry, chromium ferroalloys and metal	9,830	10,500	10,600	11,300	11,300
Government stockpile:					
Chromium ferroalloys	76,800	72,100	71,700	71,200	71,200
Chromium metal	3,860	3,850	3,850	3,850	3,850

<sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

<sup>4</sup>Includes waste and scrap and other.

TABLE 2  
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS<sup>1,2</sup>

(Metric tons, gross weight unless otherwise noted)

	2018		
	November	December	January– December <sup>3</sup>
<b>Consumption by end use:</b>			
<b>Steel:</b>			
Carbon steel	189	220	2,190
High-strength low-alloy steel	145	146	1,750
Stainless and heat-resisting steel	28,900	29,300	348,000
Unspecified steel <sup>4</sup>	2,720	2,720	32,600
Superalloys	431	438	5,250
Other alloys and uses <sup>5</sup>	96	102	1,150
<b>Total</b>	<b>32,400</b>	<b>32,900</b>	<b>391,000</b>
<b>Total, chromium content</b>	<b>19,000</b>	<b>19,300</b>	<b>233,000</b>
<b>Consumption by material:</b>			
Low-carbon ferrochromium	1,840	1,890	21,900
High-carbon ferrochromium	28,000	28,400	337,000
Ferrochromium silicon	W	W	W
Chromium metal	162	160	2,430
Chromite ore	16	16	124
Chromium-aluminum alloy	W	W	W
Other chromium materials	W	W	W
<b>Total</b>	<b>32,400</b>	<b>32,900</b>	<b>391,000</b>
<b>Total, chromium content</b>	<b>19,000</b>	<b>19,300</b>	<b>233,000</b>
<b>Consumer stocks:</b>			
Low-carbon ferrochromium	1,560	1,570	1,570
High-carbon ferrochromium	8,180	8,760	8,760
Ferrochromium silicon	761	836	836
Chromium metal	55	55	55
Chromium-aluminum alloy	W	W	W
Other chromium materials	W	W	W
<b>Total</b>	<b>10,600</b>	<b>11,300</b>	<b>11,300</b>
<b>Total, chromium content</b>	<b>6,330</b>	<b>6,700</b>	<b>6,700</b>

W Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes estimates.

<sup>3</sup>May include revised data that are not broken out by specific month(s).

<sup>4</sup>Includes electrical, full alloy, tool, and unspecified steel end uses.

<sup>5</sup>Includes cast irons, welding and alloy hard-facing rods and materials, wear- and corrosion-resistant alloys, and aluminum, copper, magnetic, nickel, and other alloys.

TABLE 3  
U.S. GOVERNMENT STOCKPILE INVENTORY OF  
CHROMIUM MATERIALS<sup>1</sup>

(metric tons)

	Chromium ferroalloys		Chromium metal
	High-carbon ferro- chromium	Low-carbon ferro- chromium	
2017, December	48,300	28,500	3,860
2018:			
January	47,900	28,500	3,860
February	47,000	28,300	3,850
March	47,000	28,200	3,850
April	46,300	28,200	3,850
May	45,600	27,900	3,850
June	45,400	27,600	3,850
July	44,500	27,600	3,850
August	44,500	27,600	3,850
September	44,500	27,600	3,850
October	44,500	27,600	3,850
November	44,000	27,600	3,850
December	43,800	27,400	3,850

<sup>1</sup>Data are rounded to no more than three significant digits.

Source: Defense Logistics Agency, DLA Strategic Materials.

TABLE 4  
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL<sup>1</sup>

	Chromite ore		Chromium ferroalloys <sup>2</sup>			Chromium metal <sup>3</sup>	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
2017:							
December	169	\$128	130	61	\$274	26	\$598
January–December <sup>4</sup>	11,100	4,760	2,110	956	3,270	622	14,400
2018:							
January	192	142	61	27	88	38	875
February	418	274	123	65	144	64	909
March	575	416	41	22	50	21	604
April	375	238	258	118	247	51	1,120
May	983	398	204	90	365	55	1,300
June	225	177	680	408	855	45	1,310
July	811	456	255	153	420	41	1,090
August	181	138	123	81	291	33	990
September	294	395	165	99	222	53	1,280
October	637	408	406	224	565	43	1,160
November	843	398	123	68	231	43	982
December	741	368	90	42	111	29	674
January–December <sup>4</sup>	6,280	3,810	2,530	1,400	3,590	514	12,300

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes low- and high-carbon ferrochromium and ferrochromium silicon.

<sup>3</sup>Includes chromium metal, waste and scrap, and unwrought powders.

<sup>4</sup>May include revised data that are not broken out by specific month(s).

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND  
CHROMIUM METAL<sup>1</sup>

(Metric tons)

	2017	2018		
	January– December	November	December	January– December <sup>2</sup>
<b>Chromite ore:</b>				
Not more than 40% chromic oxide:				
Gross weight	676	27	205	462
Chromic oxide content	166	10	79	173
More than 40% but less than 46% chromic oxide:				
Gross weight	13,700	258	1,180	14,600
Chromic oxide content	6,150	113	541	6,590
46% or more chromic oxide:				
Gross weight	116,000	76	37,800	182,000
Chromic oxide content	55,000	65	18,000	85,400
<b>Total, all grades:</b>				
Gross weight	130,000	361	39,200	197,000
Chromic oxide content	61,300	188	18,600	92,100
<b>Ferrochromium:</b>				
Low-carbon: <sup>3</sup>				
Not more than 0.5% carbon:				
Gross weight	51,600	3,350	2,340	56,000
Chromium content	33,900	2,400	1,620	38,800
More than 0.5% but not more than 3% carbon:				
Gross weight	2,820	267	463	4,130
Chromium content	1,820	188	291	2,570
<b>Total, low-carbon:</b>				
Gross weight	54,400	3,620	2,800	60,100
Chromium content	35,700	2,590	1,910	41,400
Medium-carbon: <sup>4</sup>				
Gross weight	6,740	--	7,450	8,610
Chromium content	3,370	--	3,830	4,560
High-carbon: <sup>5</sup>				
Gross weight	507,000	51,500	14,300	492,000
Chromium content	272,000	28,500	7,980	268,000
<b>Total, all grades:</b>				
Gross weight	568,000	55,200	24,600	561,000
Chromium content	311,000	31,100	13,700	314,000
<b>Chromium metal:</b>				
Unwrought powders	6,140	829	764	7,920
Waste and scrap	298	(6)	22	177
Other than waste and scrap and unwrought powders	8,090	268	315	9,940
<b>Total, all grades</b>	<b>14,500</b>	<b>1,100</b>	<b>1,100</b>	<b>18,000</b>

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Ferrochromium containing not more than 3% carbon.

<sup>4</sup>Ferrochromium containing more than 3% carbon but not more than 4% carbon.

<sup>5</sup>Ferrochromium containing more than 4% carbon.

<sup>6</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2018, BY GRADE AND COUNTRY OR LOCALITY<sup>1</sup>

Grade and country or locality	December			January–December <sup>2</sup>		
	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)
<b>High-carbon ferrochromium:<sup>4</sup></b>						
Albania	2,090	1,370	\$3,250	18,400	12,100	\$31,900
Finland	--	--	--	9,000	4,800	10,600
India	1,570	965	1,980	38,500	23,400	53,200
Kazakhstan	1,050	730	2,010	39,900	27,800	74,700
Mexico	--	--	--	40	30	103
Oman	494	302	607	11,000	6,110	13,200
Russia	974	667	1,680	29,200	20,200	54,100
South Africa	7,870	3,770	7,360	300,000	147,000	320,000
Sweden	268	178	479	1,050	705	1,970
Turkey	--	--	--	1,730	1,120	2,990
Zimbabwe	--	--	--	42,900	24,200	45,800
Total	14,300	7,980	17,400	492,000	268,000	608,000
<b>Medium-carbon ferrochromium:<sup>5</sup></b>						
India	--	--	--	1,160	728	1,630
South Africa	7,450	3,830	7,930	7,450	3,830	7,930
Total	7,450	3,830	7,930	8,610	4,560	9,560
<b>Low-carbon ferrochromium:<sup>6</sup></b>						
<b>More than 0.5% but not more than 3% carbon</b>						
Brazil	--	--	--	2,110	1,290	5,280
China	--	--	--	119	74	342
India	--	--	--	462	284	848
Kazakhstan	--	--	--	428	303	1,200
Russia	324	212	750	537	354	1,050
South Africa	139	79	255	478	268	891
Total	463	291	1,000	4,130	2,570	9,610
<b>Not more than 0.5% carbon:</b>						
Brazil	--	--	--	1,320	806	3,560
China	--	--	--	650	404	1,890
Germany	941	653	3,110	10,200	7,120	33,500
India	--	--	--	553	358	1,430
Japan	299	210	1,250	3,230	2,280	13,200
Kazakhstan	327	232	911	12,900	9,230	41,500
Russia	655	440	1,850	22,900	15,700	63,700
Turkey	119	82	369	4,210	2,940	12,900
Total	2,340	1,620	7,490	56,000	38,800	172,000
<b>All grades:</b>						
Albania	2,090	1,370	3,250	18,400	12,100	31,900
Brazil	--	--	--	3,430	2,100	8,840
China	--	--	--	769	478	2,240
Finland	--	--	--	9,000	4,800	10,600
Germany	941	653	3,110	10,200	7,120	33,500
India	1,570	965	1,980	40,700	24,700	57,100
Japan	299	210	1,250	3,230	2,280	13,200
Kazakhstan	1,380	962	2,920	53,200	37,300	117,000
Mexico	--	--	--	40	30	103
Oman	494	302	607	11,000	6,110	13,200
Russia	1,950	1,320	4,280	52,600	36,200	119,000
South Africa	15,500	7,680	15,500	308,000	151,000	329,000
Sweden	268	178	479	1,050	705	1,970
Turkey	119	82	369	5,950	4,060	15,900

See footnotes at end of table.



TABLE 6-Continued  
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2018, BY GRADE AND COUNTRY OR LOCALITY<sup>1</sup>

Grade and country or locality	December			January–December <sup>2</sup>		
	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)
Zimbabwe	--	--	--	42,900	24,200	45,800
Total	24,600	13,700	33,800	561,000	314,000	799,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

<sup>4</sup>Ferrochromium containing more than 4% carbon.

<sup>5</sup>Ferrochromium containing more than 3% carbon but not more than 4% carbon.

<sup>6</sup>Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2018, BY GRADE AND  
BY COUNTRY OR LOCALTY<sup>1</sup>

Grade and country or locality	December		January–December <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
<b>Unwrought powders:</b>				
China	214	\$2,360	1,800	\$21,900
France	19	257	237	3,830
Germany	33	261	179	2,150
India	--	--	38	459
Japan	--	--	(4)	26
Korea, Republic of	(4)	16	1	53
Russia	144	1,600	1,820	16,800
Switzerland	--	--	9	65
Taiwan	--	--	3	77
United Kingdom	354	5,160	3,820	54,600
Total	764	9,660	7,920	100,000
<b>Waste and scrap:</b>				
Brazil	--	--	2	6
Canada	8	30	50	260
China	--	--	21	314
Germany	--	--	1	17
Israel	--	--	(4)	3
Japan	--	--	4	65
Taiwan	--	--	6	122
United Kingdom	14	135	92	901
Total	22	164	177	1,690
<b>Other than waste and scrap and unwrought powders:</b>				
Canada	--	--	4	315
China	1	64	3,780	14,300
Finland	--	--	40	277
France	304	4,010	2,550	29,400
Germany	8	301	462	3,960
Italy	--	--	(4)	3
Japan	1	19	14	472
Liechtenstein	--	--	(4)	3
Malaysia	--	--	(4)	15
New Zealand	(4)	13	1	60
Poland	1	6	1	6
Russia	--	--	2,940	27,200
Spain	--	--	31	190
Taiwan	--	--	3	58
United Kingdom	--	--	117	1,620
Total	315	4,420	9,940	77,900
<b>All grades:</b>				
Brazil	--	--	2	6
Canada	8	30	54	575
China	215	2,430	5,600	36,500
Finland	--	--	40	277
France	324	4,270	2,790	33,200
Germany	41	563	642	6,130
India	--	--	38	459
Israel	--	--	(4)	3
Italy	--	--	(4)	3
Japan	1	19	18	563
Korea, Republic of	(4)	16	1	53
Liechtenstein	--	--	(4)	3

See footnotes at end of table.

TABLE 7-Continued  
 U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2018, BY GRADE AND  
 BY COUNTRY OR LOCALTY<sup>1</sup>

Grade and country or locality	December		January–December <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
Malaysia	--	--	(4)	15
New Zealand	(4)	13	1	60
Poland	1	6	1	6
Russia	144	1,600	4,760	44,100
Spain	--	--	31	190
Switzerland	--	--	9	65
Taiwan	--	--	12	256
United Kingdom	368	5,300	4,030	57,100
Total	1,100	14,200	18,000	180,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8  
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2018<sup>1</sup>

Stainless steel product	December		January–December <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
<b>Exports:</b>				
Ingot	1,550	\$8,700	27,100	\$109,000
Flat-rolled (width > 600 mm)	19,200	50,300	444,000	1,060,000
Flat-rolled (width < 600 mm)	4,290	22,500	80,500	377,000
Bars and rods in irregular coils	309	875	11,200	30,900
Other bars and rods	1,960	19,900	35,500	322,000
Wire	598	8,360	10,200	130,000
Tubes, pipes, hollow profiles	2,140	31,000	41,500	399,000
Total	30,100	142,000	650,000	2,430,000
Stainless steel scrap	43,100	28,700	778,000	327,000
Grand total	73,200	170,000	1,430,000	2,760,000
<b>Imports:</b>				
Ingot	9,620	21,000	164,000	456,000
Flat-rolled (width > 600 mm)	21,400	56,500	339,000	868,000
Flat-rolled (width < 600 mm)	3,640	13,900	63,700	230,000
Bars and rods in irregular coils	1,980	7,460	36,700	137,000
Other bars and rods	11,700	45,900	149,000	597,000
Wire	3,570	14,100	50,900	220,000
Tubes, pipes, hollow profiles	10,800	77,100	156,000	938,000
Total	62,700	236,000	959,000	3,450,000
Stainless steel scrap	15,100	12,400	329,000	345,000
Grand total	77,800	248,000	1,290,000	3,790,000

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>Export value is free alongside ship. Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.